

## CLAIMS

1. An energy recovery system for converting heat generated during operation of a working device into electrical  
5 energy using first and second thermal media and recovering the electrical energy, the system being characterized by:

a cooling device that cools one of the thermal media, generating a low temperature thermal medium by maintaining the temperature of said one of the thermal media at a  
10 predetermined value; and

a thermoelectric converter that generates electricity by utilizing a temperature difference between the low temperature thermal medium and the other one of the thermal media, with said other one of the thermal media being maintained at a  
15 temperature higher than the low temperature thermal medium by heat generated during operation of the working device to generate a high temperature thermal medium with said other one of the thermal media,

wherein the cooling device is a heat pump that generates  
20 the low temperature thermal medium by utilizing heat from the high temperature thermal medium.

2. The energy recovery system according to claim 1, wherein the heat pump is an adsorption heat pump having a  
25 working medium and an adsorbent that is capable of adsorbing and desorbing the working medium, the adsorbent heat pump has a function to desorb the working medium from the adsorbent by using heat from the high temperature thermal medium, a function to liquefy the working medium that has evaporated  
30 during the desorption, and a function to evaporate the liquefied working medium by using heat from said one of the thermal media that is used to generate the low temperature thermal medium.

35 3. The energy recovery system according to claim 2,

further comprising a cooling system for cooling and liquefying the working medium that has evaporated during the desorption from the adsorbent.

5           4. The energy recovery system according to claim 3,  
wherein the heat pump further has a function to cause the  
adsorbent to adsorb the working medium that has been  
evaporated by heat from said one of the thermal media, and  
wherein the cooling system limits the generation of heat at  
10 the adsorbent caused by the adsorption of the working medium.

          5. The energy recovery system according to claim 3 or 4,  
wherein the energy recovery system is for use with a  
refrigerant and an air conditioner having a refrigerant  
15 circuit for circulation of the refrigerant, and the cooling  
system supplies to the heat pump, coolant that has been cooled  
by the refrigerant circulating in the refrigerant circuit.

          6. The energy recovery system according to any one of  
20 claims 1 to 4, wherein the energy recovery system is for use  
with an air conditioner and the low temperature thermal medium  
is used not only for the electricity generation at the  
thermoelectric converter, but also for assisting air  
conditioning by the air conditioner.

25           7. The energy recovery system according to claim 6,  
further comprising a switching device that switches a course  
of travel of the low temperature thermal medium, such that the  
low temperature thermal medium is selectively used for  
30 electricity generation at the thermoelectric converter or for  
assisting the air conditioning by operation of the switching  
device.

          8. The energy recovery system according to any one of  
35 claims 5 to 7, wherein the working device is for mounting on a

vehicle and the air conditioner is mounted on the vehicle.

5 9. The energy recovery system according to any one of claims 1 to 8, wherein the working device is for mounting on a vehicle having a battery, and electricity generated at the thermoelectric converter is used for charging the battery.

10 10. The energy recovery system according to claim 9, wherein the working device is a power source for the vehicle, and wherein the high temperature thermal medium is coolant that has been used to cool the power source.